

**REMARKS**

**I. Introduction**

Receipt is acknowledged of a non-final office action dated October 5, 2005. In the action, claims 1-4, 6-9, 13 and 15 are rejected as allegedly failing to meet the written description requirement.

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and reasons that follow.

**II. Status of the Claims**

In this response, applicants did not make any claim amendments. In applicants' last response, claim 6 was incorrectly represented as being dependent on claim 4. The present amendment provides that claim 6 is dependent on claim 2, consistent with our response filed on May 17, 2005. Therefore, upon entry of this response, claims 1-4, 6-9, 13 and 15 will be under examination.

**III. Rejection of the Claims under 35 USC § 112, First Paragraph**

In the office action, claims 1-4, 6-9, 13 and 15 are rejected under 35 U.S.C. § 112, first paragraph, for failing to meet the written description requirement. In particular, the claims are rejected because “[t]he recitation of ‘modified by lacking 17 or less amino acid residues from the C-terminal’ in the amino acid sequence and ‘lacking 27 or less amino acid residues from the C-terminal’ . . . lack support in the specification.” Office action at 2. Applicants respectfully traverse this ground for rejection.

(1) The “C-terminal” language is supported by Example 14. Specifically, the “CGC/HA-H164” was constructed in Example 13. This construct corresponds to the protein in the paragraph (a) in claim 1, *i.e.*, “a protein having the amino acid sequence modified by lacking 17 or less amino acid residues from the C-terminal in the amino acid sequence shown in SEQ ID NO: 1.”

The construct was sequenced in Example 14, and the nucleotide sequence and corresponding amino acid sequence is described in SEQ ID NO: 6. See, specification on page 55, the bottom line.

Furthermore, as can be seen from the comparison of the amino acid sequence described in SEQ ID NO: 6 and the amino acid sequence described in SEQ ID NO: 1, the C-terminal “Ala” in SEQ ID NO: 6 corresponds to the 115<sup>th</sup> “Ala” in SEQ ID NO: 1, and therefore it is clear that the amino acid sequence described in SEQ ID NO: 6 is the same as a part of the amino acid sequence of SEQ ID NO: 1 wherein C-terminal 17 amino acids are lacking.

Thus, it is clear that the phrase “lacking 17 or less amino acid residues” in question relates to the C-terminal rather than the N-terminal in SEQ ID NO: 1.

(2) The “N-terminal” language that is objected to is supported by Example 20 of the present specification. Specifically, in Example 20 states that the extracellular domain amino acids 76-180 (IS-1) of HM1.24 was used. See, page 59, lines 20 to 21. This protein corresponds to the protein of the paragraph (b) in claim 1, *i.e.*, “a protein having an amino acid sequence modified by lacking 27 or less amino acid residues from the N-terminal in the amino acid sequence shown in SEQ ID NO: 1.”

SEQ ID NO: 1 describes a nucleotide sequence for the extracellular domain of the HM1.24 and a corresponding amino acid sequence. This nucleotide sequence corresponds to the region indicated as “Extracellular domain” in Fig. 16. In Fig. 16, the Extracellular domain starts from the 167<sup>th</sup> nucleotide and ends with the 563<sup>rd</sup> nucleotide. Therefore, this region encodes 132 amino acid residues [(563-167)/3=132]. This number “132” of amino acid residues corresponds to the total amino acid number “132” in SEQ ID NO: 1.

Therefore, it is clear that in the numbering system used in SEQ ID NO: 1, the most N-terminal amino acid of the Extracellular domain is assigned as 1 (one). On the other hand, according to the numbering system used for the “extracellular domain amino acids 76-180 (IS-1) of HM1.24”, regarding the entire coding region starting from the 23<sup>rd</sup> nucleotide and ending with the 563<sup>rd</sup> nucleotide in Fig. 16, an amino acid encoded by a codon containing the

23<sup>rd</sup> nucleotide is assigned as 1 (one). This is clear from the fact that due to “(563-23/3=180”, a codon containing the 563<sup>rd</sup> nucleotide encodes the 180<sup>th</sup> amino acid.

In comparison of these numbering systems, the amino acid position 1 in SEQ ID NO: 1 corresponds to the 49<sup>th</sup> position in Fig. 16 because of “(167-23)/3+1=49”. Therefore, the position 76 and 180 in the phrase “extracellular domain amino acids 76-180 (IS-1) of HM1.24” in question corresponds to the 28<sup>th</sup> position (76-49+1=28) and the position 132 (180-49+1=132) respectively in SEQ ID NO: 1. This means that the N-terminal structure of the “extracellular domain amino acids 76-180 (IS-1) of HM1.24” corresponds to the N-terminal sequence in SEQ ID NO: 1 from which the N-terminal 27 amino acid residues have been deleted.

Therefore, it is clear that the phrase “lacking 27 or less amino acid residues” relates to the N-terminal rather than C-terminal.

Therefore, for at least these reasons, applicants respectfully request the rejection be withdrawn.

**CONCLUSION**

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

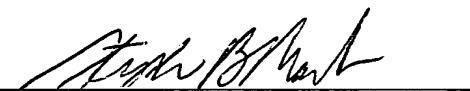
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By



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